

ANOMALOUS ERUPTIONS IN TYPHOID FEVER.

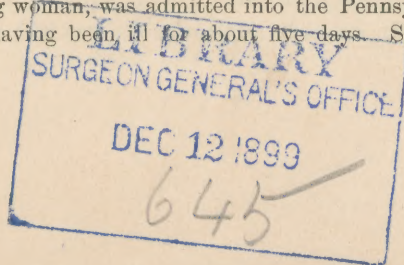
BY J. M. DA COSTA, M.D., LL D,
OF PHILADELPHIA.

THE characteristic lenticular eruption in typhoid fever has been so well studied that there is little to be added to our knowledge of it; but, irrespective of the significant rose-spots, there are rashes which are comparatively rare, imperfectly understood, and become the cause of confusion and error. The two that I shall specially examine are a diffused erythema simulating scarlet fever and an eruption like that of measles. Let me take up the scarlatiniform eruption first and illustrate it by a few cases.

CASE I.—Sarah V. (No. 2647), aged fourteen years, was admitted into the Pennsylvania Hospital on February 11, 1898. She was in the seventh day of typhoid fever; the temperature was 103.2°, the Widal reaction was positive. From the first the mottled look of the skin attracted attention; the characteristic rose-colored spots of typhoid soon became unusually profuse; they were seen on the abdomen, back, chest, and even on the face. The case did not prove a severe one. A remarkable feature was the appearance on the night of the twelfth day of the disease of a bright red erythematous eruption, readily affected by pressure and very generally diffused, but especially marked on the face and back. There were blotches of more vivid hue than others; there was no itching. No rise in temperature or abnormal state of the urine was observed in connection with the rash; the highest temperature attained was only 100.2°. No sore-throat existed, and the symptoms did not become aggravated by the occurrence of the eruption, which passed away by morning. The case went on uninterruptedly to recovery.

A yet more striking illustration of the scarlatiniform rash, and one in which this lasted very much longer, was afforded by the next case.

CASE II.—Katie F., a young woman, was admitted into the Pennsylvania Hospital on March 6, 1897, having been ill for about five days. She had



been previously in good health, and had never had either measles or scarlet fever. On admission to the hospital her temperature was noted at 103°, but it soon rose to 105°; the urine showed a trace of albumin, and one finely granular cast was found. The skin was very fair, so that any spots could have been readily detected, but none were observable. The next day there appeared on the face and arms a bright red, erythematous rash, which lessened somewhat after sponging, and was not always equally distinct, seeming to come and go, though never wholly leaving. There was no rash of the kind on the body, but it was specially observed that pressure on the skin everywhere produced a red spot which only slowly faded. The temperature ranged between 103° and 104.2°. On the 9th great disturbance of respiration was perceived, the breathing fell to twelve in the minute, and was jerky and irregular, and the erythematous rash which had disappeared showed itself again on the face and arms, giving the patient the appearance of scarlet fever—an appearance which was increased by a redness of the tonsils and the pharynx, the latter being covered with tenacious mucus. She was very ill, but the temperature was not materially different; during the night it ranged from 103.2° to 104.6°, and she was very delirious.

On the 11th the rash was still visible, and still could be made to disappear temporarily on pressure. It was again noted that none was to be seen on the body, though it now showed itself on the back of both legs; around the elbow-joints it was much less marked than on the back of the hands and forearm. Few of the characteristic lenticular typhoid spots were discernible; there were two doubtful ones on the chest. The Widal test gave a positive reaction. The influence of cold sponging was very irregular. At one sponging the temperature fell as much as six degrees; at another, of similar length and thoroughness, but four-fifths of a degree. As the case advanced the urine contained rather more albumin, and red corpuscles and quantities of hyaline and pale granular yellow casts were found. The patient died six days after admission into the hospital, near the end of the second week of typhoid fever, the rash being evident to the last. At the autopsy a great number of prominent and swollen solitary glands and Peyer's patches were seen, but none were ulcerated. The spleen was large and soft and weighed ten ounces. The lower surface was slightly mottled; the posterior portions of the lungs were congested; the kidneys were large, weighed seven and a half ounces; the substance was firm, the capsules adherent. The rash was not discernible on the surface of the body.

There are in this case some points for special study. First, the scarlatinal rash appearing in the first week and at a time in advance of the characteristic rose-spots. The rash was uniform, was not, as in the first case, preceded by mottling, was easily influenced by pressure, did not apparently modify the temperature, and persisted to the last. In its early appearance it was like a case described by Murchi-

son,¹ in which a delicate scarlet rash all over the body preceded for two or three days the lenticular spots of enteric fever. The scarlatini-form rash may remain through the fever, though it rarely does so. Irrespective of its appearance in the first week, it may come on late in the disease, and I have known it to manifest itself even in convalescence (case of Thomas G., Pennsylvania Hospital, December, 1880) and to return in a relapse. Its character may be thus described: It is a uniform red rash, like scarlatina; it is seen all over the body, though not so in every instance. It is more distinct in some places than in others. It is easily influenced by pressure. It has its periods of greater or less intensity, of partial disappearance, of vivid return. It lasts generally a week or somewhat longer. It passes away without desquamation—at least I have never seen this happen. It does not perceptibly influence the course of the temperature. It is for the most part unconnected with sore-throat or with albuminuria. As regards albuminuria, I have observed this in some of the cases I met with, but it was a prior condition connected with the typhoid fever. With reference to sore-throat, this was in a mild form in Case II., and Jenner mentions an instance in which slight sore-throat was an accompaniment, and typhoid fever was mistaken for scarlet fever. Save under the exceptional circumstances of attending sore-throat and desquamation, there is no difficulty in determining the two diseases, or in diagnosing that scarlet fever is not intercurrent in typhoid.

Rarer than the scarlatiniform eruption, and much more misleading, is an eruption like measles. This case may serve as an illustration:

CASE III.—Richard G., aged twenty-eight years, was admitted on November 26, 1886, into the Pennsylvania Hospital on the eighth day of typhoid fever. The face was flushed, the temperature 103.4°; there was marked hebetude. The abdomen was tympanitic and its surface covered with a coarse, slightly papular eruption, not crescentrically arranged and not disappearing on pressure; besides, there were a few rose-colored spots. In the course of the fever the eruption faded slowly and imperfectly, and was still perceptible when convalescence was reached. It retained its coarse appearance, and never showed itself on the limbs or thorax or the face. The notes speak of its similarity to the rash of typhus. There were also numerous sudamina. The temperature at one time reached 105°. The urine was free from albumin, though once a trace of albumin and a few hyaline casts were observed.

¹ Case XLV., Treatise on Continued Fevers.

In this case the measly eruption was limited in its extent. It was much more diffused in the next case, which, moreover, afforded a good opportunity of studying the question of its association with any temperature changes.

CASE IV.—John McG., a soldier, aged nineteen years, was sent to the Pennsylvania Hospital on November 15, 1898, suffering with typhoid fever. He had been ill for two weeks, and there were many rose-spots on the chest and abdomen. The temperature was 104.6° , the face very flushed, the spleen much enlarged; the urine contained albumin as well as a few hyaline casts; the Widal test gave a positive reaction. Five days after admission an eruption closely resembling measles appeared on the chest, abdomen, back, and upper part of the thigh, and, later, more sparsely on the legs, and yet more sparsely on the arms. On the face there were not many; they showed themselves late, and were less distinctly measly in appearance; in the notes they are described as blotches. Nowhere was there a crescentic arrangement of the raised red spots, which, however, in many places coalesced, and did not disappear on pressure. They passed away in five days, without itching or desquamation, the blotches on the face first, those on the legs last. The eyes were slightly injected, but no catarrhal symptoms existed. There were many places on the chest and abdomen in which the rose-colored spots were perceptible near the measly rash. Much hebetude was observed while the rash lasted, but as hebetude had been noticed from the time the patient was first seen, it could not be associated with the occurrence of the rash.

The appearance of the rash was not combined with any marked temperature changes; on the 18th the temperature ranged around 103° . On the 19th, the day preceding the eruption, the temperature at 9.20 A.M. was 101.6° . It rose during the day to 103° , modified, however, by sponging. During the night it continued to rise, until by 9.30 A.M. of the 20th, the day the measly eruption appeared, it reached 103.8° . On that day the temperature slowly fell, except for occasional rises, which were kept in check by sponging, until by 8 P.M. it had declined to 102.6° . During the night it continued to fall, the rises still being kept in check by sponging, until by 9.10 A.M. on the morning of the 21st it had reached 101° . During the 21st it went up slowly, passing to near 102° by 9.30 P.M., and continued to rise during the night until, by the 22d, at 9.20 A.M., it had passed to 102.6° . During the 22d the line was gradually downward, with the exception of one decided rise at 4.10 P.M., when it reached 103.8° , this rise being promptly influenced by sponging. On the 23d the range of temperature was, on the whole, lower than on the 22d, the highest attained being 101.6° at 7.40 P.M., and the lowest reached being 100° . On the 24th the temperature again went up, and on one occasion, at 1.40 P.M., reached 103.6° . During the night it steadily fell, and on the 25th, the day of the disappearance of the eruption, it was 98.6° in the morning, though once in the day it reached 101.8° . These details

of temperature are given that we may ascertain if the eruption exercised any influence on it. On the whole, the temperature showed only the zigzag which is common at this stage of typhoid fever, and did not appear to be influenced by the eruption. If any other inference were drawn it would be that the temperature was somewhat higher in the twenty-four hours preceding the eruption, and fell slowly on the day of its occurrence. The patient soon entered upon steady improvement, and was entirely convalescent sixteen days after the disappearance of the eruption.

The similarity of these cases of typhoid fever with measly eruption to typhus fever is very great, and, when we have cases in which the nervous symptoms are pronounced and enteric symptoms absent, it is very difficult to come to a conclusion, unless the malady has been seen and the temperature been studied from the beginning, for the measly rash common in typhus fever and very uncommon in typhoid has in both much the same appearance. How much alike typhoid with measly rash may be to typhus is proved by the following case:

CASE V.—John O'R. (No. 2457), aged eighteen years, previously in excellent health, living in good surroundings and not known to have been exposed to any disease, was admitted on December 12, 1898, into the Pennsylvania Hospital with a fever of a low type, stated to be of eight days' duration and to have begun with epistaxis and vomiting. His face was flushed, he was delirious, the tongue was dry and brown, the pulse weak, the temperature 103.6°, the spleen large; albumin and granular and hyaline casts were found in the urine; rose-spots were seen on the abdomen; the Widal test was positive. He presented altogether the picture of a case of typhoid fever, with marked prostration and cerebral symptoms. The delirium was the most striking feature, and in it he got out of bed and attempted to throw himself out of the window, but was fortunately caught. Two days after admission, and on the tenth day of the disease, he was covered from head to foot with a profuse eruption. On the face, hands, and feet it was as evident as on the rest of the body, and, though influenced, it did not disappear on pressure. It was composed of numerous spots of irregular form, very slightly elevated above the skin, and precisely like the measly eruption often seen in typhus. The similarity to this disease became now greater and greater, and was heightened by the absence of enteric symptoms and the occurrence on the left side of a true pneumonia of the base with rusty sputum—a form of pneumonia much more common in typhus than in typhoid. The eruption was so thick over the body that there was scarcely a pin-point free. It was not crescentically arranged; here and there it was petechial. Fearing that the case might, after all, be typhus, the patient was carefully isolated and then removed from the hospital, as a sorrowful experience of having had cases admitted into the Pennsylvania Hospital, some years ago, that proved to be

typhus,¹ and that resulted in our having within its walls very many serious instances of the disease before we got rid of it, determined me to let the rest of the patients and the attendants run no risk. The similarity of typhus remained great to the end. The temperature, the day after he left the hospital, fell by crises, as it often does in typhus fever; the eruption showed merely as brownish traces. Another Widal examination gave positive results, and the patient slowly recovered.

Looking back over the history, though the case is still not free from doubt, I believe it to have been one of typhoid fever, rendered uncertain chiefly on account of the peculiar measly eruption here under consideration.

Another error likely to arise is due to the occasional occurrence of true measles in typhoid fever. This intercurrency may be studied in the two cases now to be detailed.

CASE VI.—Gerano L., an Italian, aged seventeen years, was ill with typhoid fever for a week when admitted into the Pennsylvania Hospital on January 17, 1898. Diarrhœa and tympany were absent, but the typhoid eruption on the chest and abdomen showed very clearly through his dusky skin. By the 26th of the month the morning temperature was 99°, but it rose in the evening to 102° and slightly beyond. On the 27th and 28th there were the same morning remissions and evening exacerbations to between 102° and 103°. On the 29th, the morning temperature being 99.6°, the conjunctiva was noticed to be injected, photophobia was complained of, there was some cough, and an eruption of measles showed itself. The temperature rose to 102.1°, and went on rising as the eruption spread over the body, until on the 30th it reached 105°. On the 31st it dropped to 102°, and the catarrhal symptoms persisted. On February 1st the temperature became normal; the rash was fading. The boy was then transferred to the children's ward, which at that time contained a great many cases of measles, and where he convalesced.

CASE VII.—Paul B., a soldier, aged twenty-one years, admitted to the Pennsylvania Hospital on September 20, 1898, with typhoid fever. By the 26th his temperature had touched normal, he was sitting up in bed, and hungry. On the 29th the thermometer marked the normal, or, at the highest, 99°. He was noticed to have coryza, injected eyes, headache, and cough. Soon the temperature began to rise, and on October 5th it was at 101°, and an eruption of measles appeared on the face. The next day the whole body was covered with measles. On the trunk the crescentic arrangement was noticeable; severe itching was complained of. It was ascertained from the patient by Dr. James C. Wilson, under whose care he then was, that he had never had measles, but had been exposed to it thirteen days before the catar-

¹ "Researches on Typhus Fever." American Journal of the Medical Sciences, January, 1866.

rhial symptoms appeared, while riding to the hospital train in an ambulance with a case of measles. The Widal test, made while the measles existed, was negative, but there was a positive diazo reaction. The urine showed uric-acid crystals, but neither albumin nor sugar. The temperature on the second day of the eruption fell to 99°, and subsequently was subnormal. Desquamation was noted on the fifth day. The recovery was a good one, except for a double phlegmasia dolens which protracted it.

When we contrast these cases of coexisting measles and typhoid fever with cases of typhoid fever in which a measly rash happens, we find striking differences. First, in the character of the eruption. This in true measles is coarser, more markedly papular, and has the well-known crescentic arrangement, which is not seen in typhoid fever. Secondly, there is itching and there is desquamation, which are also not observed in the typhoid fever rash. Moreover, the presence of the coryza and catarrhal symptoms is very significant in the intercurrent measles. But of greatest value and meaning is the temperature record. In the measly eruption of typhoid the eruption has no marked influence on the temperature, or greater variations are not met with than belong to the stage of the typhoid fever in which the measly eruption may occur. It is different, as is seen by studying the temperature in both of the cases just described, in intercurrent measles. The temperature here rises decidedly in the days immediately preceding the eruption, in the prodromal stage, exactly as in ordinary measles, and it goes on rising, or remains high, with the spreading eruption. This is quite unlike what happens in the measly eruption in typhoid fever. Where we are nearing convalescence, and the temperature has been ranging around the normal line, these temperature changes are of greatest value in diagnosis. They are necessarily less so earlier and while the fever temperature of the enteric fever itself is still a pronounced one.

We have thus described a scarlatiniform eruption, a morbilliform eruption, and also spoken of the mottling of the skin. This mottling, as in typhus, is due to a subcuticular rash, and may remain as the only eruption, or precede or attend either of the other kinds. The interesting question now arises, Are all these really separate forms, or merely different expressions of the same pathological condition—in reality one affection? I believe they are one, for I have seen them combined in the same patient and apparently interchangeable. Here is a case in proof:

CASE VIII.—Walter R. (No. 1684), a soldier, aged twenty-two years, brought from Camp Meade, was admitted into the Pennsylvania Hospital on September 20, 1898, with typhoid fever. When a child he had measles and scarlet fever. He had also had pneumonia and a previous attack of typhoid fever. The day of admission, and as nearly as could be ascertained the seventh of the disease, the patient had a temperature going from 103.6° to 104.8°; there had been epistaxis; the bowels were very loose. The next day one or two lenticular rose-spots were observed on the abdomen, but what particularly attracted attention was a strange general mottling of the skin, especially marked on the chest, abdomen, and thighs. By the 24th the mottling was nearly gone; a few new rose-spots were observed on the left side of the abdomen. The temperature, that had been ranging between 102.5° and 104.4°, was somewhat lower—between 102° and 103.6°. On the 27th, though the mottling could still be seen, it was very indistinct, but many rose-colored typhoid spots were perceptible. On the 28th, the fifteenth day of the disease, a curious coarse, granular eruption, like measles, but not crescentically arranged, and affected by, but not disappearing on, pressure, showed itself on the shoulders and upper part of the arms. It was not associated with any rise of temperature; on the contrary, before its appearance the morning temperature marked 99°, the lowest it had attained at all, and during the evening it rose to 104°, about the same that it had been on the two previous evenings. The tongue was dry and cracked; there were no bronchial symptoms. The next day the measly rash still persisted; it was evident on the shoulders and upper part of the arm, and there was in addition most marked redness of the neck and lower part of the arms, of the hands, and of the chest, closely resembling scarlet fever. Neither coryza nor sore-throat was present. The scarlet fever redness left white traces when the fingers were rapidly drawn across the skin, but the hyperæmia returned. There was no redness of the face. The urine was acid, and contained no sugar, no albumin, or casts. The Widal test gave a positive reaction.

Four days after the appearance of the measly rash it had gone entirely, and the scarlet fever redness was only visible on the neck, and even there had faded. The general mottling of the whole body remained. On the afternoon of the same day the temperature, without any apparent cause, went up from 101° to 103°, and the erythematous scarlatiniform rash at once returned on the neck, chest, and wrists. There was no recurrence of the measly rash; the flush of the skin vanished in forty-eight hours and came back no more. Lenticular typhoid spots remained. The patient now entered upon convalescence.

The pathological condition is, I think, a hyperæmia of the skin, with here and there in the measly form an exudation in its layers, most likely a swelling and thickening of the corium and rete Malpighii, much as it exists in measles; but I can merely surmise this, as I have no anatomical observations to offer. It is not easy to deter-

mine how these eruptions are produced, and while several views suggest themselves, no definite proof can be given of their absolute correctness. That the rashes are not caused by the administration of any remedy, which like quinine or iodide of potassium gives rise to cutaneous eruptions—a dermatitis medicamentosa—is certain, for they may be encountered no matter what the treatment employed. The bath treatment is not responsible for them. It was not used systematically in any of the cases detailed in this paper, though in some with high temperature the bath was at times resorted to.

The anomalous rashes may be the result of the irritation of the skin from the bacilli in the infected blood, but I believe rather that they are the expression of disorder of the cutaneous nerves—that they are due to the vasomotor disturbance—but how this is caused is very doubtful. It, too, may be from direct bacillar irritation, though rapid changes in the eruption, its appearance, often sudden, and disappearance, equally sudden, are against this view. More likely is it from the blood infection, but whether this be due to the toxins from the bacilli or the absorption of the broken-down material in the diseased intestine must be a mere surmise. Yet we have a strong analogy in the production of ordinary urticaria, which we constantly see arising from the absorption of products of certain articles of food that are not readily digested, but which is also met with from purely nervous causes, as from mental excitement or sudden emotion; and it is a remarkable fact that urticaria, too, sometimes happens in typhoid fever. I have myself never seen any instances, but they have been described by Griesinger, and Dr. Woodbury has recently called my attention to a case that occurred in his practice.

The nervous element and the vasomotor disturbance are certainly very strong factors in the production of these typhoid fever rashes. Lemaigre,¹ who does not believe that they are always due to the same cause, cites a case of Siredey's, in which a man went on having scarlatiniform eruptions for years afterward. The first of these rashes happened in typhoid fever, and was even followed by desquamation. He recovered entirely, but had nine subsequent attacks in the succeeding years, each also followed by desquamation.

The nervous element showed very strongly in this case, which was under my care at the Pennsylvania Hospital :

¹ Thèse de Paris, 1888, No. 209.

CASE IX.—Thomas G., aged twenty-five years, a man of excellent physique and good habits, was in the Pennsylvania Hospital with typhoid fever in September, 1880. During its course marked flushing of the face was noticed, and he stated in explanation that he always flushed readily and from the slightest cause. There were successive crops of rose-spots, even on the arms. During convalescence he had an attack of general erythema, looking like a scarlet fever eruption, but unconnected with sore-throat. He was discharged from the hospital November 22d, and returned in December with severe pain in the back and the sciatic nerve on the right side, said to have followed sleeping in a cold, damp place. It was attended with moderate fever, which lasted for nearly two weeks, and concerning which it was doubtful whether it was a typhoid fever relapse or not. It was not accompanied by rose-spots or enteric symptoms or albuminuria, but as it kept up without apparent cause it was looked upon as a typhoid-fever relapse. In its course it was observed that whenever he was spoken to in a decided manner there was flushing of the whole surface; indeed, the arms and face especially flushed under the least excitement. The flushing in the face was attended with a sense of heat, but this was not the case in the rest of the body. After keeping quiet for a few minutes the erythema always subsided, leaving a mottled appearance of the surface. There was no sore-throat, and no desquamation ever followed the erythematous flushings; but engorgement of the capillaries gave to his skin the appearance of scarlet fever. It was, however, only in parts uniform; in others in uneven patches, and it was not attended with any feeling of cold or with itching. There was never any evidence of rheumatic affection of the joints, muscles, or heart. The temperature, which ranged about 101°, did not become normal until eighteen days after his readmission into the hospital, and he was soon afterward discharged.

There is nothing in these rashes which seems to add gravity to the prognosis. It is true—though there are instances in this paper which show the contrary—that they mostly happen in severe cases of typhoid fever; especially does the morbilliform eruption, which is much more apt to occur later in the disease and to be associated with graver symptoms than the scarlatiniform rash. But the prognosis is to be determined by these symptoms rather than by the eruptions; and, as regards treatment, they call for no special line of therapeutics. As febrile albuminuria may coexist we must pay close attention to the renal secretions. It is from the point of view of diagnosis and pathology that these rashes merit attention and serious study.

